



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/508,771	03/16/2000	JINKO KIMURA	500.38296X00	8406
24203	7590	03/13/2006	EXAMINER	
GRIFFIN & SZIPL, PC SUITE PH-1 2300 NINTH STREET, SOUTH ARLINGTON, VA 22204			WALKE, AMANDA C	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 03/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/508,771

Applicant(s)

KIMURA ET AL.

Examiner

Amanda C. Walke

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,12-19,21-25,27-38 and 42-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10,12-19,21-25,27-38 and 42-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10, 13-19, 21-25, 28-38, and 44-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taguchi (4,360,582) in view of Mannion (5,198,484).

Taguchi teaches a photopolymerizable element comprising a layer of a photopolymerizable composition and a film support made of a transparent material. In order to produce a resist image on a substrate, the photopolymerizable layer is applied to a substrate, exposed imagewise to actinic radiation and developed to form an image (c. 3, 1. 20-46). The said element may further comprise a strippable protective film provided on the other surface of the photopolymerizable composition layer for preventing blocking at the winding step and adhesion of dust during handling (c. 3, 1. 62-68). Appropriate materials for the said protective film include polyethylene terephthalate, polypropylene film, polyethylene film, cellulose triacetate film, polyamide and polyethylene laminated paper (c. 10, 1. 15-23). Taguchi teaches that the thinner the photopolymerizable layer, the more the resolution is improved (c. 9, 1. 17-19). Example 1 exemplifies a solution comprising poly(methyl methacrylate) as an organic binder, a photopolymerization monomer, and a photoinitiator coating onto a 50 micron thick polypropylene film and dried to form a photopolymerizable layer having a dry thickness of 10 microns. The said layer was then laminated onto a 20 micron-thick polymethyl methacrylate)

Art Unit: 1752

support film. The polypropylene film was then stripped and the said layer was laminated to a treated copper-clad epoxy resin fiberglass substrate. The formed element was then exposed to actinic rays and developed to form a negative image. An etching process was then preformed to remove the copper at the areas unprotected by the resist image (c. 16, 1. 30-c. 17, 1. 17). While Taguchi is silent on fish eyes, it clearly teaches the use of a polypropylene protective film,

Mannion discloses a process for incorporating a clarifying agent into a semi-crystalline resin is provided whereby a clarifying agent is in the form of a powder of a mean particle size of 15 microns or less, is blended with the polyolefin resin, at a temperature above 170 degrees C. until the clarifying agent is dissolved in the molten resin. The use of clarifying agents to reduce the haze in articles manufactured from crystalline polyolefin resins, specifically polypropylene, is well known in the art. Representative acetals of sorbitol and xylitol, which have been employed as clarifying agents. One approach used to eliminate bubbles or "fish eyes" is with sorbitol acetal clarified polyolefins. This method involves using a distribution of di-acetals of sorbitol made from a mixture of benzaldehyde and di- or tri-methyl substituted benzaldehyde. The composition has a relatively low melting point, but still must be compounded above its melting point to avoid bubbles. Also, the composition has relatively poor clarifying properties compared to di-acetals of sorbitol made entirely from alkyl substituted benzaldehydes. The polyolefin polymers of the present invention may include aliphatic polyolefins and copolymers made from at least one aliphatic olefin and one or more ethylenically unsaturated comonomers. Generally, the comonomers, if present, will be provided in a minor amount, e.g., about 10% or less or even about 5% or less, based upon the weight of the polyolefin. Such comonomers may serve to assist in clarity improvement of the polyolefin, or they may function to include other

Art Unit: 1752

properties of the polymer. Examples include acrylic acid, methacrylic acid, and esters of the same, vinyl acetate, etc. Examples of olefin polymers whose transparency can be improved conveniently according to the present invention are polymers and copolymers of aliphatic mono-olefins containing from 2 to about 6 carbon atoms, which have an average molecular weight of from about 10,000 to about 2,000,000, preferably from about 30,000 to about 300,000, such as polyethylene, linear low density polyethylene, polypropylene, crystalline ethylene/propylene copolymer (random or block), poly(1-butene) and polymethylpentene. The polyolefins of the present invention may be described as semi-crystalline, basically linear, regular polymers which may optionally contain side chains, such as are found in conventional low density polyethylene. Other polymers which may benefit from the reduced particle sized clarifying agents of the present invention include polyethylene terephthalate, glycol modified polyethylene terephthalate, polybutylene terephthalate, and polyamides. The process of the present invention is particularly adapted for commercial compounding of a clarifying agent and polyolefin resin. The term "compounding" is used broadly to describe the process of dispersing clarifying agent throughout a resin while the resin is in a molten state, i.e. heated to above its melting point. Often, the base resin, which has the appearance of a fluffy particulate, is dry blended with the desired additives including clarifying agents and extruded by the resin manufacturer. The resin is usually extruded a second time immediately before being processed into finished articles by, for example, injection molding, extrusion blow molding, injection blow molding, stretch blow molding, compression molding, rotational molding, profile extrusion, sheet extrusion, thermal forming, film extrusion, and film extrusion with orientation. Regardless of how many times the mixture of resin and clarifying agent is extruded or otherwise blended while in a molten state, it is important

Art Unit: 1752

that prior to forming the composition into an article, that the clarifying agent be dissolved in the resin melt. In many cases, dissolution will be accomplished by the clarifying agent melting and being distributed throughout the molten resin. However, an advantage of the present process is that the clarifying agent may dissolve in the molten resin without even approaching the melting point of the clarifying agent.

The reference specifically mentions that bubbles/n fish eyes are “eliminated”, thus the addition of the compounds to the polymers results in a number of fish eyes meeting the instant claim limitations (zero).

Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the protective film of Taguchi choosing to add the clarifying agents of Amnion to achieve higher transparency and better coating properties by “eliminating” bubbles/fish eyes, with reasonable expectation of achieving a material capable of forming a durable image.

Additionally, with respect to the newly added claims 44-46 which require that the resin of the layer be filtered after thermal melting, this is a product by process limitation, therefore the layer simply has to be made of a resin.

3. Claims 12 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taguchi in view of Mannion and further in view of Hoffmann (US 4,710,446).

Taguchi and Mannion have been discussed above teaches all the limitations of the instant claims except the specific initiators set forth in instant claims 12 and 27. Taguchi does however teach that the photopolymerizable layer comprises a photopolymerization initiator wherein the

Art Unit: 1752

kind of initiator to be used is not particularly critical and any known photopolymerization initiator can be used (c. 6, 1. 42-45). It is the examiner's position that 2,4,5-triarylimidazole dimer is a well-known and conventional photoinitiator. This position is supported by the teachings of Hoffmann which teach that photoinitiator systems conventionally used for resist layer include benzophenone, 2,4,5- triarylimidazole dimmers and mixtures thereof (c. 6, 1. 9-27).

4. Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taguchi in view of Mannion and further in view of Takahashi et al (5,589,306).

Taguchi and Mannion have been discussed above teaches all the limitations of the instant claims except the specific initiators set forth in instant claims 42 and 43. Tagushi discloses a variety of di (meth)acrylates and is not limited thereto, but fails to teach the specifically claimed compound.

Takahashi et al discloses a variety of diacrylates suitable for use in photoresists. Included among them are ethoxylate bisphenol A diacrylates.

Given the teachings of the references, it would have been obvious to one of ordinary skill in the art to prepare the material of the Taguchi in view of Mannion choosing to employ the diacrylate of Takahashi with reasonable expectation of achieving a material capable of forming a durable image.

Response to Arguments

5. Applicant's arguments filed 12/27/2005 have been fully considered but they are not persuasive.

Art Unit: 1752

Again applicant has argued that the references fail to teach a layer having the stated number of fish eyes, or that it recognizes fish eyes as a problem. As stated above, the method of measuring is not given weight as the claims as drawn to a material, not a method, and that regardless of the method of evaluating, the area of the layer would possess the same number of fish eyes as they are a part of the material. Again, the combination of references aims to “eliminate” the fish eyes entirely, thus the number of fish eyes would fall within the instant claim limitations. While the reference is silent with respect to the presence of fish eyes being a problem, one of ordinary skill in the art would desire a defect-free layer when preparing such a layer. Additionally, as stated by the MPEP, the *prima facie* case of obviousness is not undermined simply because applicant’s motivation for preparing the material differs from that of the prior art’s motivation. In re Dillon, 919 F.2d 688, 692-93, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990) (in banc), cert. Denied, 500 U.S. 904 (1991).

Therefore, the lack of a teaching of what the fish eye population should or would be in and of itself does not overcome the rejection.

Additionally, applicant has argued that the Mannion reference does not actually teach eliminating “fish eyes”. The Mannion reference clearly teaches eliminating “fish eyes” as its taught third approach, and while it does not address the size, the use of the phrase *eliminating* “fish eyes” is taken to mean just that.

With respect to the argument that the examiner has “completely failed” to address the limitations of filtering the resin after thermal melting according to claims 44-46, it is noted that the examiner could not consider those limitations previously as they are newly added claims. These claims have been addressed above for their product by process limitations.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amanda C. Walke whose telephone number is 571-272-1337. The examiner can normally be reached on M-R 5:30-4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1752

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Amanda C Walke
Examiner
Art Unit 1752

ACW
March 3, 2006